AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for production of three-dimensional bodies by successive fusing together of selected areas of a powder bed, which parts correspond to successive cross sections of the three-dimensional body, the method comprising:

applying a powder layer to a work table,

fusing said powder layer by supplying energy from a radiation gun according to an operating scheme determined for the powder layer to said selected area within the powder layer such that the powder in said selected area is fused into a cross section of said three-dimensional body,

calculating an energy balance for said selected area~~, said calculating including~~ by

determining whether energy radiated into the selected area is sufficient to maintain a defined working temperature of the selected area~~;, and~~

~~solving a thermal conductivity equation for a given temperature distribution of the selected area~~

wherein said fusing said powder layer by supplying energy from a radiation gun also includes heating the selected area to the defined working temperature when the calculated energy balance indicates there is insufficient energy to maintain the selected area at said defined working temperature; and

where said calculating an energy balance is performed before said fusing.

2. (Currently amended) The method as claimed in claim 1, where said ~~supplying energy from a radiation gun also includes heating the selected area to a defined working~~

~~temperature if the calculated~~calculating an energy balance ~~indicates there is insufficient energy to maintain the selected area at said defined working temperature~~further includes solving a thermal conductivity equation for a given temperature distribution of the selected area.

3. (Cancelled)

4. (Previously presented) The method as claimed in claim 1 or 2, the method further comprising:

dividing the selected area into a set of separate areas,

calculating an energy for each of said separate areas, and

determining whether there is sufficient energy to maintain the selected area at said defined working temperature by summing the energies of said separate areas.

5. (Cancelled)

6. (Currently amended) An arrangement for producing a three-dimensional product, the arrangement comprising:

a work table on which said three-dimensional product is built up,

a powder dispenser that distributes a thin layer of powder on the work table, thereby forming a powder bed,

a radiation gun that fuses the powder together by delivering energy thereto,

a beam guide that guides the beam emitted by the radiation gun over said powder bed such that the beam forms a cross section of said three-dimensional product by fusing together parts of said powder bed, and

a control computer which

stores information about successive cross sections of the three-dimensional product, which cross sections build up the three-dimensional product,

controls the beam guide according to an operating scheme, ~~and~~

stores information about a calculated~~calculates~~ amount of supplied energy required to maintain at least one part area within each powder layer at a defined working temperature~~an energy balance for at least one part area within each powder layer by determining whether energy radiated into the part area is sufficient to maintain a defined working temperature of the part area and solving a thermal conductivity equation for a given temperature distribution of the part area~~; and

sets the calculated amount of supplied energy as a maximum energy output of the radiation gun before the radiation gun delivers energy to said at least one part area.

7. (Currently amended) The arrangement as claimed in claim 6, where the control computer ~~controls the beam guide according to the operating scheme such that, in addition to said energy for fusing together powder layers, the radiation gun delivers energy for heating the powder layer to a defined working temperature if the calculated energy balance indicates there is insufficient energy to maintain the selected area at said defined working~~

~~temperature~~calculates the amount of supplied energy required by solving a thermal conductivity equation for a given temperature distribution of the at least one part area.

8. (Cancelled)

9. (Currently amended) The arrangement as claimed in any one of claims 6 or 7, where the control computer further:

divides the surface within each powder layer into a set of separate areas,

calculates an amount of supplied energy required ~~energy being calculated~~ for each of said separate areas, and

sets the calculated amount of supplied energy as a maximum energy output of the radiation gun for each ~~determines whether there is sufficient energy to maintain the selected area at said defined working temperature by summing the energies~~ of said separate areas before the radiation gun delivers energy to said separate areas.

10 – 12. (Cancelled)

13. (Previously presented) The method of claim 1, where said calculating an energy balance includes assuming that the entire selected area has the same temperature.

14. (Currently amended) The method of ~~claim 1~~claim 2, where said calculating an energy balance includes assuming that the temperature distribution does not change during ~~fusion~~said fusing ~~is stationary~~.

15. (New) A method for production of three-dimensional bodies by successive fusing together of selected areas of a powder bed, which parts correspond to successive cross sections of the three-dimensional body, the method comprising:

applying a powder layer to the powder bed;

fusing a selected area of the powder layer, where fusing includes

supplying energy from a radiation gun, according to an operating scheme determined for the powder layer, to the selected area such that the powder in the selected area is fused into a cross section of said three-dimensional body;

calculating an amount of supplied energy required to maintain the selected area at a defined working temperature during said supplying energy; and

setting the calculated amount of supplied energy as a maximum energy output of the radiation gun during said supplying energy, where said setting is performed before said supplying energy.

16. (New) The method of claim 15, said supplying energy further including maintaining the selected area at the defined working temperature by supplying additional energy when the supplied energy is less than the maximum energy output.

17. (New) The method of claim 16, the method further comprising ensuring that the total energy amount associated with the selected area is not exceeded during said fusing.

18. (New) The method of claim 16, where said calculating an amount of supplied energy required further includes solving a thermal conductivity equation for a given temperature distribution of the selected area, where the temperature distribution identifies local temperature differences within different portions of said selected area.

19. (New) The method of claim 15, the method further comprising:

dividing the surface within each powder layer into a set of separate areas,

calculating an amount of supplied energy required for each of said separate areas, and

setting the calculated amount of supplied energy as a maximum energy output of the radiation gun for each of said separate areas before supplying energy to said separate areas.

20. (New) The arrangement of claim 6, where said control computer calculates the amount of supplied energy required